

What is claimed is:

1. A pre-expanded beads of olefin-modified polystyrene-based resin comprising a pre-expanded beads of a polystyrene-based resin modified with a polyolefin-based resin, wherein a styrene-based monomer
5 forming a polystyrene-based resin in the beads is used in the range of 100 to 1,000 parts by weight relative to 100 parts by weight of a polyolefin-based resin, a bulk density of each bead is 0.012 to 0.20 g/cm³, and an absorbance ratio at 698 cm⁻¹ and 2850 cm⁻¹ (D₆₉₈/D₂₈₅₀) obtained from an infrared absorption spectrum of each bead surface
10 measured by ATR method infrared spectroscopy is in the range of 0.1 to 2.5.
2. A pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 1, wherein the absorbance ratio is in the range of
15 0.4 to 2.0.
3. A pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 1, wherein the bulk density is 0.014 to 0.15 g/cm³.
- 20 4. A pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 1, wherein the polyolefin-based resin exists in a surface of the pre-expanded bead more than its central part.
5. A pre-expanded beads of olefin-modified polystyrene-based resin
25 according to Claim 1, wherein a "z" average molecular weight of the polystyrene-based resin measured with GPC is in the range of 350,000 to 1,100,000.

6. A pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 1, wherein the polyolefin-based resin is a branched low-density polyethylene, linear low-density polyethylene or
5 ethylene-vinyl acetate copolymer, and the polystyrene-based resin is a polystyrene resin.

7. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin comprising the steps of:

10 (a) polymerizing a styrene-based monomer (100 to 1,000 parts by weight relative to 100 parts by weight of polyolefin-based resin beads to be used) while impregnating polyolefin-based resin beads with the styrene-based monomer, in the presence of a polymerization initiator in an aqueous medium in which the polyolefin-based resin beads are
15 dispersed, to obtain the olefin-modified polystyrene-based resin beads,
(b) impregnating the resin beads with a blowing agent, and
(c) pre-expanding the resin beads impregnated the blowing agent to obtain the pre-expanded beads of olefin-modified polystyrene-based resin,

20 wherein in the step (a), the aqueous medium is stirred at a power required for stirring of 0.06 to 0.8 kw/m³, and impregnation and polymerization of the styrene-based monomer are performed under a condition where a styrene-based monomer content in the polyolefin-based resin beads is 35% by weight or less.

25 8. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein, in the step (a),

the polymerization initiator is added at 0.02 to 2.0% by weight of a total amount of the polyolefin-based resin beads to be used and the styrene-based monomer until an amount of the styrene-based monomer to be used reaches 90% by weight of a total amount of the
5 styrene-based monomer to be used.

9. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein, in the step (a), the polymerization initiator is added at 0.02 to 2.0% by weight of a total
10 amount of the polyolefin-based resin beads to be used and the styrene-based monomer until an amount of the styrene-based monomer to be used reaches 90% by weight of the total amount of the styrene-based monomer to be used, and then a styrene-based monomer containing no polymerization initiator is added.

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10. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 9, wherein, an amount of the styrene-based monomer containing no polymerization initiator is 10 to 60% by weight of a total amount of a styrene-based monomer to be
20 used.

11. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein a polymerization of the styrene-based monomer is conducted in the range of -30 to +10°C
25 of a melting point of the polyolefin-based resin.

12. A method for producing pre-expanded beads of olefin-modified

polystyrene-based resin according to Claim 7, wherein the polyolefin-based resin beads are beads of a branched low-density polyethylene, linear low-density polyethylene or ethylene-vinyl acetate copolymer, and the polystyrene-based monomer is a styrene monomer.

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13. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein the power required for stirring is in the range of 0.08 to 0.7 kw/m³.

10 14. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein the impregnation and polymerization of a styrene-based monomer are performed so that a content of the styrene-based monomer in the polyolefin-based resin bead is in the range 0 to 30% by weight.

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15. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein the step (b) is performed under stirring with a paddle-type stirring wing.

20 16. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein a total amount of the styrene-based monomer to be used is in the range of 130 to 700 parts by weight relative to 100 parts by weight of the polyolefin-based resin beads.

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17. A method for producing pre-expanded beads of olefin-modified polystyrene-based resin according to Claim 7, wherein the

styrene-based monomer contains a crosslinking agent.

18. An expanded molded article obtained by charging the
pre-expanded beads of olefin-modified polystyrene-based resin of Claim
5 1 into a mold, followed by expansion molding.

19. An expanded molded article according to Claim 18 using as a
vehicle cushioning material.